



California Regional Water Quality Control Board

Colorado River Basin Region



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Protection

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CRWQCB-CRBR EXHIBIT No. 4

TO: Jose L. Angel, Division Chief
Watershed Protection Division

FROM: Nadim Zeywar, P.h.D
Environmental Scientist

SIGNATURE: _____ s/ 3/22/02 _____

DATE: March 22, 2002

SUBJECT: ESTIMATES OF SELENIUM CONCENTRATIONS FROM PROPOSED IID/SDCWA
TRANSFER

At your request, I have reviewed the draft EIS/EIR projected selenium concentrations and prepared an estimate based on our data and assumptions. I then compared the estimates with the draft EIS/EIR projected concentrations. My estimates are different from the projected levels, and, at least for the New River, they are significantly different. CRWQC-CRBR Table Nos. 1 through 6 show my estimates and comparisons.

I am available to discuss the matter if you wish at your convenience.

Attachment: CRWQCB-CRBR Table Nos. 1 through 6

Selenium Estimates on New River Watershed

Assumptions:	References
1. Approximaetly 300,000 AFY would be transferred	(1)
2. New River Flow inputs to Salton Sea would be reduced by 22% (100,000 AFY)	(1)
3. On-farm conservation measures would account 67% of reduction of inputs (or 67,000 AFY)	(1)
4. Improvements to Water Delivery System would account for 33% reduction of inputs (or 33,000 AFY)	(1)
5. Leaching requirements remain the same (i.e, tilwwater quantity remains approximately the same)	(1)
6. No significant reduction in flows at the International Boundary	(1)
7. A reduction of 7% of flows at the International Boundary due to Power Plants in Mexicali	(3)
8. Selenium remains in suspension in the drainage system	(3)
9. Selenium concentrations remains the same at International Boundary	(3)

CRWQCB-CRBR Table 1: Current Flows and Se Conditions in the New River				
Parameter	Flows		Selenium	
	AFY	References	Se (ppb)	References
Tailwater (TA)	107,000	(1)	2.5	(1)
Tilewater (TI)	112,400	(1)	20.3	(3)
Rainfall, municipal and industrial and operational discharges and seepage (RMIO)	68,000	(1)	2.5	(3)
New River at International Boundary (ARIB)	165,000	(1)	3	(1)
Total (outlet to the Sea) (TO)	452,400	(1)	7.10	See Note Below

Note: The Baseline conditions according to the draft EIS/EIR is 3.3 ppb, but the historic data included in the EIS/EIR shows that the level is 7.1 ppb. Therefore, 7.1 is used.

CRWQCB-CRBR Table 2: Regional Board staff Estimates of Project Impacts on Flow and Selenium Conditions in the New River (no reduction in flows at the International Boundary)				
Parameter	Flows		Selenium	
	AFY	References	Se (ppb)	References
Tailwater (TA)	40,000	Calculated from previous table (107000-67000) and Assumption Nos. 2 and 3	2.5	(1)
Tilewater (TI)	112400	Based on Assumption No. 5	20.3	(3)
Rainfall, municipal and industrial and operational discharges and seepage (RMIO)	35,000	Calculated from previous table (68,000-33000) and Assumption Nos. 2, 3, and 4	2.5	(3)
New River at International Boundary (ARIB)	165000	Assumption No. 6	3.0	(1)
Total (outlet to the Sea) (TO)	352400		8.4	Estimated by Staff using Equation No. 1, below
Equation No. 1: $\text{Se conc. of TO} = (\text{Se conc. of TA})(\text{Flow of TA}) + (\text{Se conc. of TI})(\text{Flow of TI}) + (\text{Se conc. of RMIO})(\text{Flow of RMIO}) + (\text{Se conc. of ARIB})(\text{Flow of ARIB}) / (\text{Flow of TO})$				

CRWQCB-CRBR Table 3: Regional Board staff Estimates of Project Impacts on Flow and Selenium Conditions in the New River (w/ a 7% reduction in flows at the International Boundary)				
Parameter	Flows		Selenium	
	AFY	References	Se (ppb)	References
Tailwater (TA)	40,000	Calculated from previous table (107000-67000) and Assumption Nos. 2 and 3	2.5	(1)
Tilewater (TI)	112400	Based on Assumption No. 5	20.3	(3)
Rainfall, municipal and industrial and operational discharges and seepage (RMIO)	35,000	Calculated from previous table (68,000-33000) and Assumption Nos. 2, 3, and 4	2.5	(3)
New River at International Boundary (ARIB)	153450	Assumption No. 7	3.0	(3)
Total (outlet to the Sea) (TO)	340,850		8.6	Estimated by Staff using Equation No. 1, below
Equation No. 1: $\text{Se conc. of TO} = (\text{Se conc. of TA})(\text{Flow of TA}) + (\text{Se conc. of TI})(\text{Flow of TI}) + (\text{Se conc. of RMIO})(\text{Flow of RMIO}) + (\text{Se conc. of ARIB})(\text{Flow of ARIB}) / (\text{Flow of TO})$				

Selenium Estimates on Alamo River Watershed

Assumptions:	References
1. Approximaetly 300,000 AFY would be transferred	(1)
2. Alamo River Flow inputs to Salton Sea would be reduced by 175,000 AFY	(1)
3. On-farm conservation measures would account 67% of reduction of inputs (or 117,250 AFY)	(1)
4. Improvements to Water Delivery System would account for 33% reduction of inputs (or 57,750 AFY)	(1)
5. Leaching requirements remain the same (i.e, tilwwater quantity remains approximately the same)	(1)
6. Alamo River flows at the International Boundary remain same	(1)
7. Selenium remains in suspension in the drainage system	(3)

CRWQCB-CRBR Table 4: Current Flows and Se Conditions in the Alamo River				
Parameter	Flows		Selenium	
	AFY	References	Se (ppb)	References
Tailwater (TA)	216,000	(1)	2.5	(1)
Tilewater (TI)	228,000	(1)	16.5	(3)
Rainfall, municipal and industrial and operational discharges and seepage (RMIO)	168,000	(1)	2.5	(3)
Alamo River at International Boundary (ARIB)	4,000	(1)	5.9	(1)
Total (outlet to the Sea) (TO)	616,000	(1)	7.70	(1)
included in the EIS/EIR shows that the level is 7.1 ppb. Therefore, 7.1 is used.				

CRWQCB-CRBR Table 5: Regional Board staff Estimates of Project Impacts on Flow and Selenium Conditions in the Alamo River (no reduction in flows at the International Boundary)				
Parameter	Flows		Selenium	
	AFY	References	Se (ppb)	References
Tailwater (TA)	98,750	Calculated from previous table (216000-117250) and Assumption Nos. 2 and 3	2.5	(1)
Tilewater (TI)	228,000	Based on Assumption No. 5	16.5	(3)
Rainfall, municipal and industrial and operational discharges and seepage (RMIO)	110,250	Calculated from previous table (168,000-57750) and Assumption Nos. 2, 3, and 4	2.5	(3)
Alamo River at International Boundary (ARIB)	4000	Assumption No. 6	5.9	(1)
Total (outlet to the Sea) (TO)	441,000		9.8	Estimated by Staff using Equation No. 1, below
Equation No. 1: $\text{Se conc. of TO} = (\text{Se conc. of TA})(\text{Flow of TA}) + (\text{Se conc. of TI})(\text{Flow of TI}) + (\text{Se conc. of RMIO})(\text{Flow of RMIO}) + (\text{Se conc. of ARIB})(\text{Flow of ARIB}) / (\text{Flow of TO})$				

References

- (1) IID Water Conservation and Transfer Project/ Draft Habitat Conservation Plan/ Draft EIR/EIS 2001
- (2) USGS. Water Resources Investigations 93-4014: Detailed Study of Water Quality, Bottom Sediment, and Biota Associated with Irrigation Drainage in the Salton Sea Area, California. 1988-90. 1993
- (3) Se conc. for Tilewater and Rainfall, municipal and industrial and operational discharge and seepage were derived using data in table 3.1-4 of the IID's Water Transfer EIR/EIS 2001:
- (4) Se conc % difference was calculated as $\% \text{ Difference} = (\text{Se conc. with proposed project} - \text{Se conc. with current conditions}) * 100 / (\text{Se conc. With current conditions})$

Summary Tables

CRWQC-CRBR Table 6: Summary of Projected and Estimated Se Concentrations (ppb) for Alamo River Outlet to Salton Sea		
Parameter	Table 3.1-15 of Draft EIS/EIR	CRWQCB-CRBR Estimate
Baseline (ppb)	6.25	7.7
With proposed project (ppb)	7.86	9.77
% difference	25.76	26.88

CRWQC-CRBR Table 7: Summary of Projected and Estimated Se Concentrations (ppb) for New River Outlet to Salton Sea			
Parameter	Table 3.1-16 of Draft EIS/EIR	CRWQCB-CRBR Estimate (no reduction of flow at International Boundary)	CRWQCB-CRBR Estimate (w/ a reduction of flows of 7% at the International Boundary)
Baseline (ppb)	3.3	7.1	7.2
With proposed project (ppb)	3.77	8.41	8.6
% difference	14.24	18.45	19.44